Claims

We claim:

1. A brake system for a vehicle having a plurality of wheels and a frame, comprising:

a mechanically actuated braking assembly operably coupled with at least one of the wheels and being operable between braking and non-braking conditions;

a handle operably coupled to the braking assembly and being mounted to the frame for pivotal movement about a substantially horizontal axis between first and second positions in each of which the braking assembly is actuated to the braking condition; and

an actuating mechanism responsive to movement of the handle from either of the first and second positions for actuating the braking assembly into the non-braking condition.

2. The brake system as claimed in claim 1 wherein the actuating mechanism is responsive to movement of the handle from one of the first and second positions toward the other of those positions.

3. The brake system as claimed in claim 1 wherein the first position includes a location where the handle is substantially vertical relative to the frame.

4. The brake system as claimed in claim 3 wherein the second position includes a location where the handle is substantially horizontal relative to the frame.

5. The brake system as claimed in claim 1 wherein the braking assembly includes a brake rotor coupled to the wheel and sandwichingly disposed between inner and outer brake pads respectively having inner and outer surfaces.

6. The brake system as claimed in claim 5 wherein the braking assembly includes a brake caliper assembly coupled to the frame adjacent to the wheel and operably coupled to the brake

pads for moving the respective inner surfaces of the brake pads into frictional engagement with the brake rotor when the braking assembly is actuated to the braking condition.

7. The brake system as claimed in claim 6 wherein the brake caliper assembly includes a pivotally mounted actuation lever defining a fulcrum and having a distal end with a lever aperture and a proximal end disposed in substantial abutting relationship with the outer surface of the inner brake pad, the distal and proximal ends being reciprocally pivotal between rearward and forward positions relative to the fulcrum whereby moving the distal end of the actuation lever to the rearward position causes the inner surface of the inner brake pad to move into frictional engagement with the brake rotor.

8. The brake system as claimed in claim 1 further comprising a biasing mechanism to bias the braking assembly into the braking condition.

9. The brake system as claimed in claim 7 further comprising a biasing mechanism to bias the braking assembly into the braking condition.

10. The brake system as claimed in claim 9 wherein the biasing mechanism includes a yoke having two-spaced apart arms sandwichingly disposed about the distal end of the actuation lever and converging to a shared leg, each arm having an arm aperture that is axially aligned with the lever aperture.

11. The brake system as claimed in claim 10 wherein the leg of the yoke is coupled to an elongated rod that extends generally outwardly relative to the frame and through a brake assembly bracket that is fixedly secured to the frame adjacent to the braking assembly.

12. The brake system as claimed in claim 11 wherein the biasing mechanism includes a compression spring circumferentially disposed around the rod and having a terminal end in

abutting relationship with the brake assembly bracket and an opposing end coupled to the rod thereby causing a generally outwardly directed biasing force to be applied to the rod.

13. The brake system as claimed in claim 12 further comprising a brake control cable operably coupling the handle to the distal end of the actuation lever, the cable terminating adjacent to the actuation lever with a ring-type connector having a connector aperture that is axially aligned with the lever aperture and the arm apertures.

14. The brake system as claimed in claim 13 wherein the arms, actuation lever and cable connector are pivotally coupled to each other with a pin disposed through the arm, lever and connector apertures, wherein when a generally forwardly directed force is applied to the brake control cable, the distal end of the lever is pivoted forwardly thereby causing the inner surfaces of the brake pads to be in spaced relation to the brake rotor and the compression spring to compress toward the brake assembly bracket.

15. A method of mechanically operating a braking assembly on a wheeled vehicle, comprising:

mounting a handle to the vehicle for pivotal movement between first and second positions; and

operably coupling the handle to the braking assembly so that movement of the handle from either of the first and second positions actuates the braking assembly to a non-braking condition.

16. The method as claimed in claim 15 further comprising biasing the braking assembly into a braking condition.

17. A handle swivel assembly for a vehicle having a frame and a plurality of wheels comprising:

a rear support base having a vertically oriented bearing support;

a pivot pin disposed through the bearing support and pivotally coupled to the frame with a support structure thereby facilitating pivotal movement of the rear support base about a vertical axis relative to the front end;

a first vertically oriented side plate coupled to the support base and having a first pivot link aperture disposed adjacent to an upper end thereof and a first handle pivot aperture forwardly disposed adjacent to a lower end thereof; and

a generally horizontally oriented front support plate coupled to the side plate adjacent to the upper end thereof and having a substantially centrally disposed tie rod aperture for pivotal engagement with a tie rod that is operably coupled to a wheel for directional manipulation thereof.

18. The handle swivel assembly as claimed in claim 17 wherein the rear support base includes upper and lower horizontal plates vertically spaced relative to each other and integrally coupled to an upstanding wall disposed rearwardly relative to the side plate, each horizontal plate having a centrally disposed aperture in substantial vertical axial alignment relative to each other for receiving the bearing support.

19. The handle swivel assembly as claimed in claim 18 wherein the first side plate is coupled to the upper and lower horizontal plates.

20. The handle swivel assembly as claimed in claim 19 further comprising a second vertically oriented side plate coupled to the support base in transversely opposing relation to the first side plate and having a second pivot link aperture disposed adjacent to an upper end thereof in substantial horizontal axial alignment with the first pivot link aperture and a second handle

pivot aperture forwardly disposed adjacent to a lower end thereof in substantial horizontal axial alignment with the first handle pivot aperture.

21. The handle swivel assembly as claimed in claim 20 wherein the front support plate is disposed between the first and second side plates thereby aligning the tie rod aperture in substantial equidistant relation to the first and second side plates.

22. The handle swivel assembly as claimed in claim 17 wherein the support structure includes a frame support fixedly secured to the frame and having a substantially horizontal channelway defined by two spaced apart, horizontally aligned sidewalls terminating on each end with a substantially vertically aligned frame bearing.

23. The handle swivel assembly as claimed in claim 22 wherein each sidewall includes a base pivot aperture disposed in substantial equidistant relation to the bearings and in substantial vertical axial alignment with each other.

24. The handle swivel assembly as claimed in claim 23 wherein the pivot pin is disposed through the pivot apertures and the bearing support thereby pivotally coupling the support base to the support structure.

25. The handle swivel assembly as claimed in claim 24 further comprising a wheel support having a generally outwardly extending spindle for operable engagement with a wheel and coupled to a base portion having inwardly extending upper and lower flanges, each flange having a flange bearing aperture in substantial vertical alignment relative to each other.

26. The handle swivel assembly as claimed in claim 25 wherein the upper flange includes a forwardly disposed tie rod support aperture for operably coupling the wheel support to the front support plate with the tie rod.

27. The handle swivel assembly as claimed in claim 26 wherein the wheel support is pivotally coupled to the support structure by disposing a pivot pin through the flange bearing apertures and the frame bearing.

28. The handle swivel assembly as claimed in claim 20 further comprising a pivot link having a horizontally aligned pivot link bearing disposed between the first and second side plates in substantial horizontal axial alignment with the first and second pivot link apertures.

29. The handle swivel assembly as claimed in claim 28 wherein the pivot link is pivotally coupled to the first and second side plates with a pivot link pin disposed through the first and second pivot link apertures and the pivot link bearing.

30. The handle swivel assembly as claimed in claim 29 wherein the pivot link includes a depending integral swing arm terminating with a substantially horizontal, transversely disposed cam bearing.

31. The handle swivel assembly as claimed in claim 30 further comprising a handle having a substantially elongated portion terminating with a horizontally oriented handle bearing disposed between two opposing, longitudinally extending cam plates, each cam plate having a cam structure disposed adjacent to an edge thereof.

32. The handle swivel assembly as claimed in claim 31 wherein the cam structure includes a substantially arcuate cam follower path with a retaining structure disposed in the approximate middle of the path.

33. The handle swivel assembly as claimed in claim 32 wherein the handle bearing is disposed between the first and second plates in substantial horizontal axial alignment with the first and second handle pivot apertures.

34. The handle swivel assembly as claimed in claim 33 wherein the handle is pivotally coupled to the first and second support plates with a handle pivot pin disposed through the first and second handle pivot apertures and the handle bearing.

35. The handle swivel assembly as claimed in claim 34 further comprising a brake control cable operably coupling the handle to a braking assembly that is operably coupled with a wheel and having a first terminal end with a cable connector having a vertically resisted portion with a centrally disposed cam pin aperture, the cable being coupled to the cam plate with a cam pin disposed through the cam pin aperture and the cam structure, wherein pivoting the handle about a horizontal axis from either a first position or second position causes a forwardly directed force in the cable to actuate the braking assembly to a non-braking condition.

36. A frame structure for supporting a trailer comprising a pair of horizontally spaced frame assemblies, each frame assembly including at least two transversely opposed wheels having substantially parallel rotational axes and a horizontally oriented lower support base with an upstanding wall portion.

37. The frame structure as claimed in claim 36 wherein each frame assembly includes a horizontally oriented upper support base horizontally and vertically offset from the lower support base, the upper and lower support bases being integrally coupled with the wall portion.

38. A frame structure as claimed in claim 36 wherein each frame assembly includes at least two depending substantially parallel sidewalls, each sidewall adapted to support a wheel.

39. A frame structure as claimed in claim 38 wherein at least one of the sidewalls includes a sidewall aperture for securing items in a well known manner.

40. A frame structure as claimed in claim 39 wherein the sidewall aperture is oblong shaped and disposed in a substantially inclined angle relative to the trailer.

41. A method of supporting a trailer comprising:

disposing a pair of frame assemblies having wheels in horizontally spaced relation to each other, each frame assembly having a lower support base and an upstanding wall portion; and

disposing the trailer on top of the lower support bases and between the upstanding wall portions.